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THE REFORM OF THE CALENDAR.

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BY RALPH E. WILSON.

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During the early part of 1912 a letter was put into circulation by the Swiss Minister at Washington, asking the opinion of the scientific and commercial men of this country upon a reform of the Gregorian calendar proposed by Professor L. A. GROSCLAUDE, of Geneva, Switzerland. For several centuries the correlation of the day, week, month, and year, as presented in the Gregorian calendar, has been unsatisfactory, and many schemes of reform have been suggested. No one of them, however, has met with enough favor to justify its universal adoption.

According to the *Encyclopædia Britannica* the objects sought in the making of a calendar are the preservation of the beginning of the year at the same distance from the solstices or equinoxes and the equable distribution of days among twelve months. The Gregorian calendar does very well in satisfying these demands if we exclude the February fiasco, but now we may add another requirement—namely, that each day of the week shall occur on the same dates in successive years. The problem, then, presents itself in this form: the year contains  $365\frac{1}{4}$  days, is divided into twelve months and approximately into fifty-two weeks of seven days each; correlate the week, month, and year so that the days of the week will fall on the same dates year after year. Clearly this can only be done by the method of intercalation, and in practically every one of the thirty or more reforms proposed since 1900 the intercalation has been made at the end of the year. New Year's Day is observed as a commercial holiday in nearly every part of the civilized world. If, then, we consider that day as an international holiday, known only as New Year's Day, and give to it neither week name nor monthly date, no serious inconvenience would be caused in the business world. For recording historical events the day would be known as New Year's Day, 1912, 1913, or whatever the year might be, so there would be no inconvenience in chronology. The Julian date is used exten-

sively in astronomical work and this method of reckoning dates would not be affected in anyway by the proposed reform. New Year's Day, then, would simply not go on record as a day of the week; its name would not be Monday or Thursday; it would not belong to any month, but would be merely a holiday, set apart by itself, between December 31st and January 1st.

This is the principal point in each proposed reform, for, having done away with one day as a week day, we have left 364 days or exactly fifty-two weeks. In this case all dates become absolutely fixed from year to year, except as leap year enters into consideration. There can be, however, no valid objection to an extra intercalation every fourth year under the same conditions as we intercalate New Year's Day, the day to be known as Leap Day and to belong neither to week or month. The time for the insertion of this day may present some cause for argument. The two most logical times are at the beginning of the year immediately following New Year's Day or in the middle, between the last day of June and the first day of July. The first alternative would leave the distance of a day from the beginning of the year absolutely fixed, a condition very desirable in astronomical work. It would also, however, give two holidays in succession at the beginning of the year, and, in case we assume the year to begin on Monday, there would be three days in succession within which business would be at a minimum, clearly an undesirable condition. The second alternative obviates this condition, but makes variable the position of the days in the year. Still this is a minor consideration and we may assume that with the intercalation of New Year's Day each year and Leap Day every fourth year, wherever it may be inserted, the correlation of the week and year would be accomplished.

When we consider the correlation of the month and year another problem presents itself, as 364 is not divisible by 12. The fact that 364 is divisible by 13 has led M. AUGUSTE COMTE, a French philosopher, to propose the introduction of an extra month, thus giving thirteen months of twenty-eight days, or exactly four weeks each. Clearly this would be the ideal calendar. Not only would each day have the same date in successive years, but even in successive months each day

would occur on the same date. Thus, we should need but one table of twenty-eight days, which would serve for all time, and a calendar as such would be absolutely unnecessary. There are, however, some very strong objections to the insertion of an extra month. It is rather too radical to hope for its general adoption. Nations are naturally conservative, and, having come to look upon the month as a twelfth of a year, it is a question whether so radical a change in their whole reckoning of time would be welcomed. Especially would this be true in the commercial world, where salaries are paid on a monthly basis and where accounts are settled and interest calculated by twelfths, quarters or halves of a year. The mere fact that twelve is divisible into so many even parts, while thirteen is not, makes it highly desirable that the number of months should not be changed in spite of the great simplification in the calendar the introduction of an extra month would produce.

There seems to be but one other way in which to correlate exactly the week and month and that is accomplished by making the months of unequal length, such as 28, 28, 35, or 35, 28, 28 days for the three months of each quarter. The objections to this plan from a commercial standpoint must be evident to any thinking person. So practical solution seems to be to give up attempts at exact correlation of the week and month and to compromise on an approximate correlation.

The simplest plan of reform seems to be that proposed by Professor GROSCLAUDE, the letter concerning which prompted this article. Professor GROSCLAUDE proposes to divide the year into four quarters containing 91 days each, 364 days in all, the intercalated New Year's Day making 365. As 91 is divisible by 7, there would be 13 weeks in each quarter, and the week, quarter and year are exactly correlated. Dates from quarter to quarter and from year to year would become absolutely fixed. Each quarter would be composed of three months of 30, 30 and 31 days. If we assume the year to begin on Monday, Sunday thus being the seventh day, each quarter would begin on Monday and end on Sunday. As most accounts are made upon the last work day of each month, reckoning would be greatly facilitated under this plan, inasmuch as the last work day would always be the 30th. Those months which

would have 31 days would always end on Sunday, so that the 31st could never be a work day. Neither would the 30th ever be Sunday. Such a fixture of account days would be greatly appreciated in the business world. The days of the week would come on the same dates in successive quarters, but not in successive months, so that the adoption of this calendar would necessitate the memorizing of three absolutely fixed tables. The memorizing would, however, be exceedingly simple. Assuming the year to begin on Monday, Sunday, for example, would occur on the 7th, 14th, 21st and 28th of January, April, July and October, the first months of each quarter; on the 5th, 12th, 19th and 26th of the second months, and on the 3d, 10th, 17th, 24th and 31st of the last months of each quarter. If one simply remembered the dates of the first Sunday of the month in the quarter, 7th, 5th or 3d, all other dates could be easily calculated, and after a short period of usage the tables would have been unconsciously memorized.

Many minor modifications of this scheme have been proposed, such as the commencement of the year on Sunday or at the spring equinox. None of them, however, seem to present any advantages over the provisions of the Grosclaude reform. The essential points of this proposal may be summarized as follows: The division of the year into quarters containing three months of 30, 30 and 31 days respectively, 13 weeks and 91 days; the intercalation of New Year's Day between Sunday, December 31st, and Monday, January 1st; and the intercalation of Leap Day every fourth year between Sunday, June 31st, and Monday, July 1st. We should gain by the adoption of such a calendar an absolute fixation of dates from year to year and from quarter to quarter, with all the resulting advantages from a business standpoint. Above all, there would be little change from the calendar to which we are accustomed. Our present methods of reckoning dates would not be materially changed. Everything taken into consideration, the Grosclaude scheme seems to present a maximum of advantage with a minimum of disadvantage, and when the demand for a change becomes strong enough should meet with ready acceptance universally.

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